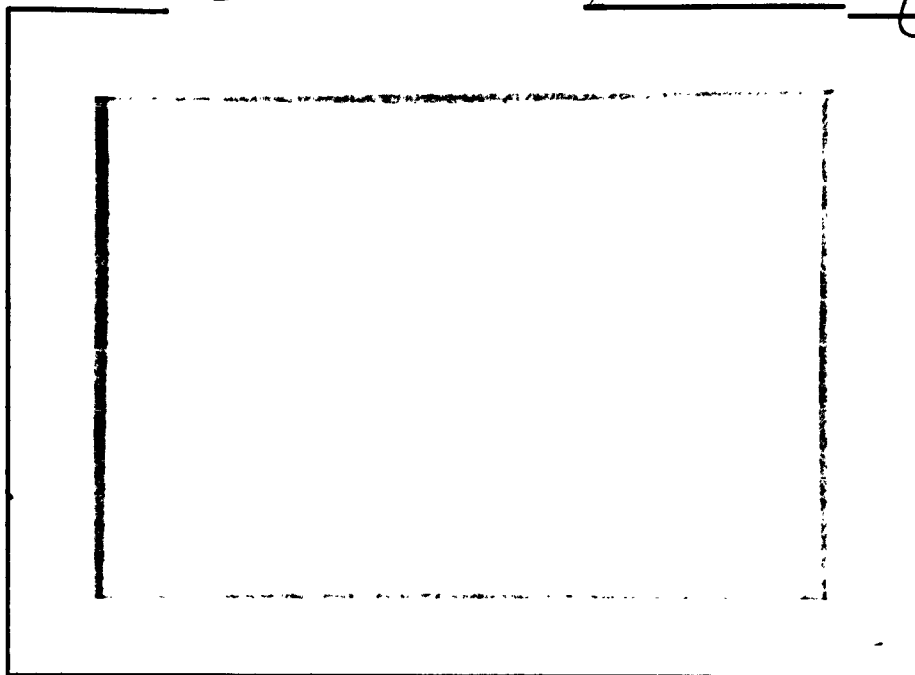


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COSMIC RAY GROUP

*School of Physics*

MAY 17 1963

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(7) NA  
(8) Z  
(9) NA  
(11) Apr 63  
(12) 2p.

(13) NA  
(14) NA  
(15) NA  
(16) NA  
(17) NA  
(18) NA

(19) NA  
(20) Z  
(21) NA

(6) BALLOON FLIGHT RECORD STATUS REPORT

as of 31 December 1962

by

(7) John R. Winckler

(5) 584700

School of Physics  
University of Minnesota

Supported by

National Science Foundation  
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Cosmic Ray Group

April 1963

## BALLOON FLIGHT RECORD STATUS REPORT

as of 31 December 1962

School of Physics, University of Minnesota  
Minneapolis 14, Minnesota

↓ This tabulation is a continuation of four previous status reports.\*  
Balloon flights were launched from Minneapolis, Minnesota, Fort Churchill, Manitoba, Canada, and Kerguelen Island in the South Indian Ocean; the latter being a coordinated experiment with Professor Jacques Blamont of the Meudon Group. The flights used either the standard monitoring apparatus described earlier, or the scintillation counters to obtain more specific data about x-rays resulting from electron precipitation. Besides the launchings made simultaneously at Kerguelen and Minneapolis in September 1962, coordinated launchings were made at Minneapolis and Fort Churchill simultaneously with launchings at Flin Flon, Manitoba, Canada, carried out by Dr. Kinsey Anderson of the University of California, Berkeley. These latter experiments were to measure x-rays resulting from electron precipitation during magnetic storms at high latitudes.

The tabulation gives the flight number, launch time, launch location, duration, and type of instrumentation used on each of the flights. The flight duration is measured from launch time. The floating pressure altitude of the current balloon system is 6 mb. In general, the flights attempt to maintain altitude about two hours after the stated launch time. The balloon system allows flight at a constant altitude, however, so that the balloon can be used for a longer duration and analysis of status report of

to February 1963.  
Balloon Flight Record Status Report as of 31 December 1959.  
Balloon Flight Record Status Report as of 30 December 1960.  
Balloon Flight Record Status Report as of 31 December 1961.

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detailed time-pressure curve for each flight is necessary for final analysis. An index for the types of instruments used is attached at the end of the tabulation. The original data from flights during 1960, 1961, and 1962 are being plotted in standard form and copied photographically on 5 x 7 inch negatives. We shall endeavor to furnish copies of these original graphs in a convenient size to qualified scientists in other laboratories. Nuclear emulsion packages were carried on most flights. This analysis is carried out by the Nuclear Emulsion Group, School of Physics, University of Minnesota.

Inquiries about this project should be addressed to Professor J. R. Winckler, School of Physics, University of Minnesota, Minneapolis 14, Minnesota.

<u>Flight No.</u>	<u>Launch Time (UT)</u>	<u>Launch Date (UT)</u>	<u>Launch Location</u>	<u>Hours Duration (Launch to Termination)</u>	<u>Instrumentation</u>
M-347	0257	6 Jan 1962	Minneapolis	3 hrs 50 min	Standard
M-348	0306	11 Jan 1962	Minneapolis	24 hrs 24 min	Standard
M-349	0305	19 Jan 1962	Minneapolis	23 hrs 12 min	Standard
M-350	0310	26 Jan 1962	Minneapolis	3 hrs 51 min	Standard
M-351	0029	30 Jan 1962	Minneapolis	24 hrs 31 min	Standard
M-352	0259	2 Feb 1962	Minneapolis	3 hrs 43 min	Standard
M-353	1605	3 Feb 1962	Minneapolis	25 hrs 25 min	SCI, GT
M-354	1601	4 Feb 1962	Minneapolis	5 hrs 44 min	SCI, GT
M-355	1538	5 Feb 1962	Minneapolis	7 hrs 49 min	SCI, GT
M-356	1429	6 Feb 1962	Minneapolis	24 hrs 1 min	SCI, GT
M-357	1532	7 Feb 1962	Minneapolis	9 hrs 18 min	SCI, GT
M-358	0315	8 Feb 1962	Minneapolis	210 hrs 40 min	SCI, GT
M-359	1609	8 Feb 1962	Minneapolis	5 hrs 22 min	SCI, GT
M-360	0306	9 Feb 1962	Minneapolis	212 hrs 54 min	SCI, GT
M-361	1717	9 Feb 1962	Minneapolis	6 hrs 27 min	Standard
M-362	0302	10 Feb 1962	Minneapolis	22 hrs 48 min	SCI, GT
M-363	1652	10 Feb 1962	Minneapolis	210 hrs 48 min	SCI, GT
M-364	0257	11 Feb 1962	Minneapolis	211 hrs 3 min	SCI, GT
M-365	1640	11 Feb 1962	Minneapolis	6 hrs 45 min	SCI, GT
M-366	1323	12 Feb 1962	Minneapolis	9 hrs 17 min	SCI, GT
M-367	1343	13 Feb 1962	Minneapolis	210 hrs 37 min	SCI, GT
M-368	0249	15 Feb 1962	Minneapolis	28 hrs 36 min	SCI, GT
M-369	0244	16 Feb 1962	Minneapolis	7 hrs 16 min	SCI, GT
M-370	0035	17 Feb 1962	Minneapolis	27 hrs 17 min	SCI, GT
M-371	1403	17 Feb 1962	Minneapolis	29 hrs 9 min	SCI, GT
M-372	0602	22 Feb 1962	Minneapolis	214 hrs 43 min	SCI, GT
M-373	0806	3 Mar 1962	Minneapolis	3 hrs 14 min	SCI

<u>Flight No.</u>	<u>Launch Time (UT)</u>	<u>Launch Date (UT)</u>	<u>Launch Location</u>	<u>Hours Duration (Launch to Termination)</u>	<u>Instrumentation</u>
M-401	0310	31 Jan 1962	Kerguelen Is.	>3 hrs 30 min	SCI
M-402	0218	1 Feb 1962	Kerguelen Is.	>13 hrs	SCI
M-403	0220	2 Feb 1962	Kerguelen Is.	>14 hrs	Standard
M-404	1630	2 Feb 1962	Kerguelen Is.	>19 hrs	SCI
M-405	1650	3 Feb 1962	Kerguelen Is.	>15 hrs	SCI
M-406	1547	4 Feb 1962	Kerguelen Is.	>24 hrs	SCI
M-407	1611	5 Feb 1962	Kerguelen Is.	>18 hrs	SCI
M-408	1605	6 Feb 1962	Kerguelen Is.	>20 hrs	SCI
M-409	1558	7 Feb 1962	Kerguelen Is.	>22 hrs	SCI
M-410	1545	8 Feb	Kerguelen Is.	>24 hrs	SCI
M-411	1555	9 Feb 1962	Kerguelen Is.	>2 hrs 30 min	Standard
M-412	1606	10 Feb 1962	Kerguelen Is.	>22 hrs	SCI
M-413	0130	11 Feb 1962	Kerguelen Is.	>2 hrs 30 min	SCI
M-414		11 Feb 1962	Kerguelen Is.	Negligible	SCI
M-415		12 Feb 1962	Kerguelen Is.	Negligible	SCI
M-416	0144	13 Feb 1962	Kerguelen Is.	>8 hrs	SCI
M-417		14 Feb 1962	Kerguelen Is.	Negligible	SCI
M-418		14 Feb 1962	Kerguelen Is.	Negligible	SCI
M-419	1728	14 Feb 1962	Kerguelen Is.	>23 hrs	SCI
M-420		15 Feb 1962	Kerguelen Is.	Negligible	SCI
M-421			Kerguelen Is.	Negligible	SCI
M-422	1513	16 Feb 1962	Kerguelen Is.	>20 hrs	SCI
M-423	1530	17 Feb 1962	Kerguelen Is.	>9 hrs	SCI
M-424	1453	22 Feb 1962	Kerguelen Is.	>9 hrs	SCI*
M-425	0415	24 Feb 1962	Kerguelen Is.	>4 hrs	Standard
M-426	1820	25 Feb 1962	Kerguelen Is.		SCI

\*Ship Launch

<u>Flight No.</u>	<u>Launch Time (UT)</u>	<u>Launch Date (UT)</u>	<u>Launch Location</u>	<u>Hours Duration (Launch to Termination)</u>	<u>Instrumentation</u>
M-427	0719	19 Sept 1962	Minneapolis	>19 hrs 41 min	SCI
M-428	0049	20 Sept 1962	Minneapolis	>25 hrs 26 min	SCI
M-429	0514	22 Sept 1962	Minneapolis	20 hrs 38 min	Standard
M-430	0502	26 Sept 1962	Minneapolis	>9 hrs 58 min	SCI
M-431	0040	29 Sept 1962	Minneapolis	7 hrs 31 min	SCI
M-432	1411	29 Sept 1962	Minneapolis	8 hrs 42 min	SCI
M-433	0126	30 Sept 1962	Minneapolis	>21 hrs 4 min	SCI-8 Channel
M-434	0203	1 Oct 1962	Minneapolis	>17 hrs 57 min	SCI
M-435	0020	2 Oct 1962	Minneapolis	>10 hrs 5 min	Large SCI
M-436	0101	3 Oct 1962	Minneapolis	9 hrs 26 min	Large SCI
M-437	0415	20 Oct 1962	Minneapolis	>5 hrs 25 min	Standard
M-438	0319	3 Nov 1962	Minneapolis	>2 hrs 4 min	Standard
M-439	0302	10 Nov 1962	Minneapolis	>5 hrs 39 min	Standard
M-440	0258	30 Nov 1962	Minneapolis	9 hrs 4 min	Standard
M-441	0105	8 Dec 1962	Minneapolis	10 hrs 45 min	Standard
M-442	0036	29 Dec 1962	Minneapolis	>2 hrs 24 min	Standard

M-443 through M-448: These numbers are presently in use for flights.

M-449	0358	1 July 1962	Churchill	>11 hrs 32 min	Standard
M-450	0550	6 July 1962	Churchill	>7 hrs 10 min	SCI
M-451	0600	7 July 1962	Churchill	>7 hrs	SCI
M-452	0745	15 July 1962	Churchill	>13 hrs 45 min	Standard
M-453	1915	23 Aug 1962	Churchill	>9 hrs 15 min	Standard
M-454	0825	25 Aug 1962	Churchill	>18 hrs 20 min	Standard
M-455	0245	28 Aug 1962	Churchill	>4 hrs 37 min	Standard
M-456	0730	19 Sept 1962	Churchill	>18 hrs 9 min	SCI
M-457	2315	19 Sept 1962	Churchill	>21 hrs 43 min	SCI
M-458	2325	21 Sept 1962	Churchill	>10 hrs 55 min	Standard

<u>Flight No.</u>	<u>Launch Time (UT)</u>	<u>Launch Date (UT)</u>	<u>Launch Location</u>	<u>Hours Duration (Launch to Termination)</u>	<u>Instrumentation</u>
M-427	0719	19 Sept 1962	Minneapolis	>19 hrs 41 min	SCI
M-428	0049	20 Sept 1962	Minneapolis	>25 hrs 26 min	SCI
M-429	0514	22 Sept 1962	Minneapolis	20 hrs 38 min	Standard
M-430	0502	26 Sept 1962	Minneapolis	>9 hrs 58 min	SCI
M-431	0040	29 Sept 1962	Minneapolis	7 hrs 31 min	SCI
M-432	1411	29 Sept 1962	Minneapolis	8 hrs 42 min	SCI
M-433	0126	30 Sept 1962	Minneapolis	>21 hrs 4 min	SCI-8 Channel
M-434	0203	1 Oct 1962	Minneapolis	>17 hrs 57 min	SCI
M-435	0020	2 Oct 1962	Minneapolis	>10 hrs 5 min	Large SCI
M-436	0101	3 Oct 1962	Minneapolis	9 hrs 26 min	Large SCI
M-437	0415	20 Oct 1962	Minneapolis	>5 hrs 25 min	Standard
M-438	0319	3 Nov 1962	Minneapolis	>2 hrs 4 min	Standard
M-439	0302	10 Nov 1962	Minneapolis	>5 hrs 39 min	Standard
M-440	0258	30 Nov 1962	Minneapolis	9 hrs 4 min	Standard
M-441	0105	8 Dec 1962	Minneapolis	10 hrs 45 min	Standard
M-442	0036	29 Dec 1962	Minneapolis	>2 hrs 24 min	Standard

M-443 through M-448: These numbers are presently in use for flights.

M-449	0358	1 July 1962	Churchill	>11 hrs 32 min	Standard
M-450	0550	6 July 1962	Churchill	>7 hrs 10 min	SCI
M-451	0600	7 July 1962	Churchill	>7 hrs	SCI
M-452	0745	15 July 1962	Churchill	>3 hrs 45 min	Standard
M-453	1915	23 Aug 1962	Churchill	>9 hrs 15 min	Standard
M-454	0825	25 Aug 1962	Churchill	>18 hrs 20 min	Standard
M-455	0845	28 Aug 1962	Churchill	>4 hrs 37 min	Standard
M-456	0730	19 Sept 1962	Churchill	>18 hrs 9 min	SCI
M-457	2315	19 Sept 1962	Churchill	>21 hrs 43 min	SCI
M-458	2325	21 Sept 1962	Churchill	>10 hrs 55 min	Standard



<u>Flight No.</u>	<u>Launch Time (UT)</u>	<u>Launch Date (UT)</u>	<u>Launch Location</u>	<u>Hours Duration (Launch to Termination)</u>	<u>Instrumentation</u>
M-459	2357	24 Sept 1962	Churchill	>11 hrs 3 min	SCI-8 Channel
M-460	0545	26 Sept 1962	Churchill	>14 hrs 15 min	SCI
M-461	0650	29 Sept 1962	Churchill	>8 hrs 40 min	SCI
M-462	0100	30 Sept 1962	Churchill	>8 hrs 40 min	SCI
M-463	1100	30 Sept 1962	Churchill	>6 hrs	SCI-8 Channel
M-464	0800	10 Oct 1962	Churchill	>2 hrs 47 min	SCI
M-465	0214	2 Oct 1962	Churchill	>12 hrs 16 min	SCI
M-466	0140	30 Oct 1962	Churchill	>6 hrs 20 min	SCI

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Instrumentation Code:

Standard = Ion Chamber, Single Counter, Telescope

SCI = Scintillation Counter

GT = Geiger Telescope

> = Termination time not known accurately at time of this report.